I claim:

1. A medical bandaging product for being dispensed in predetermined lengths suitable for a given medical use, comprising:

(a) an elongate sleeve formed of moisture-impervious material and sealable to prevent entry of moisture;

(b) an elongate medical material positioned in said sleeve and sealed therein against entry of moisture until use, said medical material comprising:

(i) a substrate formed of a single thickness layer formed of first yarns, and second yarns integrated into the single thickness layer of first yarns, the second yarns comprised of high-strength, high modulus fibers for increasing the strength and dimensionally stabilizing the substrate;

(ii) a reactive system impregnated into or coated onto said substrate, said system remaining stable when maintained in substantially moisture-free conditions and hardening upon exposure to sufficient moisture to form a rigid, self supporting structure; and

(iii) a soft, flexible protective wrapping enclosing said substrate along its length to provide a cushioning barrier between the substrate and the skin of a patient when the material is in use;

(c) means for resealing said sleeve against entry of moisture after a predetermined length of said bandaging product has been dispensed for use to prevent hardening of said substrate remaining in said sleeve.

2. A medical bandaging product according to claim 1, wherein first yarns are formed of fiberglass.

3. A medical bandaging product according to claim 1, wherein the first yarns are formed of fiberglass and the second yarns are formed from fibers selected from the group consisting of para-aramid fibers, meta-aramid fibers and polybenzimidazone (PBI) fibers.

4. A medical bandaging product according to claim 1, wherein said protective wrapping enclosing the substrate comprises a fibrous nonwoven cushion.

5. A medical bandaging product according to claim 4, wherein said protective wrapping enclosing the substrate comprises a nonwoven polypropylene tube.

6. A medical bandaging product according to claim 1, wherein said reactive system comprises a blended polyisocyanate, polyol, catalyst and stabilizer.

7. A medical bandaging product according to claim 1, wherein said single layer substrate is knitted.

8. A medical bandaging product according to claim 1, wherein the medical bandaging product is positioned within a dispensing box.

9. A medical bandaging product according to claim 1, wherein the second yarns extend in spaced-apart relation to each other along the longitudinal axis of the substrate.

10. A medical bandaging product according to claim 1, wherein the substrate is a double needlebar Raschel knit.

11. A medical bandaging product in roll form for being dispensed in predetermined lengths suitable for a given medical use, comprising:

(a) an elongate sleeve formed of a moisture-impervious aluminum foil laminate having an outer tear resistant plastic layer, a central aluminum foil layer and an inner heat sealable plastic layer and sealable to prevent entry of moisture;

(b) an elongate medical material positioned in said sleeve and sealed therein against entry of moisture until use, said medical material comprising:

(i) a substrate formed of a knitted single thickness layer formed of first yarns, and second yarns integrated into the single thickness layer of first yarns, the second yarns comprised of high-strength, high modulus fibers for increasing the strength and dimensionally stabilizing the substrate, the second yarns extending longitudinally along the length of the substrate in spaced-apart relation to each other;

(ii) a reactive system impregnated into or coated onto said substrate, said system remaining stable when maintained in substantially moisture-free conditions and hardening upon exposure to sufficient moisture to form a rigid, self supporting structure and comprising a blended polyisocyanate, polyol, catalyst and stabilizer; and

(iii) a soft, flexible protective nonwoven tubular web enclosing said substrate along its length to provide a cushioning barrier between the substrate and the skin of a patient when the material is in use;

(c) means for resealing said sleeve against entry of moisture after a predetermined length of said bandaging product has been dispensed for use to prevent hardening of said substrate remaining in said sleeve.

12. A substrate for a medical bandaging product, comprising:

(a) a single thickness layer formed of first yarns; and

(b) second yarns integrated into the single thickness layer of first yarns, the second yarns comprised of high-strength, high modulus fibers for increasing the strength and dimensionally stabilizing the substrate.

13. A substrate according to claim 12, wherein said single layer substrate is knitted.

14. A substrate according to claim 12, wherein the wherein first yarns are formed of fiberglass.

15. A substrate according to claim 12, wherein the first yarns are formed of fiberglass and the second yarns are formed from fibers selected from the group consisting of para-aramid fibers, meta-aramid fibers and polybenzimidazone (PBI) fibers.

16. A substrate according to claim 12, wherein the second yarns extend in spaced-apart relation to each other along the longitudinal axis of the substrate.

17. A substrate according to claim 12, wherein the substrate is a double needlebar Raschel knit.

18. A substrate according to claim 12, wherein:

(a) the reactive system is impregnated into or coated onto the substrate, the system remaining stable when maintained in substantially moisture-free conditions and hardening upon exposure to sufficient moisture to form a rigid, self supporting structure; and

(b) the substrate is enclosed within a soft, flexible protective wrapping along its length to provide a cushioning barrier between the substrate and the skin of a patient.

19. A substrate according to claim 18, wherein the substrate is packaged within a moisture-impervious package and sealing therein until use.